

IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF WISCONSIN

ULTRATEC, INC. and CAPTEL, INC.,

Plaintiffs,

v.

SORENSEN COMMUNICATIONS, INC. and
CAPTIONCALL, LLC,

Defendants.

OPINION & ORDER

14-cv-66-jdp

Plaintiffs Ultratec, Inc. and CapTel Inc. contend that they are industry leaders in telephonic communication devices for the deaf and hearing-impaired, and this case is one of four in this court in which they accuse defendants Sorenson Communications, Inc. and CaptionCall, LLC of infringing their patents.

This case once included four patents, but the parties have pared it down one: U.S. Patent No. 7,660,398 for “Captioned Telephone Service” to Robert M. Engelke, et al. Ultratec owns the ’398 patent and licenses it to CapTel, Ultratec’s sister company. CapTel provides captioned telephone service in competition with defendants. A captioned telephone provides a hearing-impaired user with nearly real-time text captions to accompany a voice conversation with another user. Plaintiffs assert claims 11, 12, and 13 of the ’398 patent, which claim a method of operating a captioned telephone call using specific configurations of components.¹

Defendants have moved for summary judgment of non-infringement and invalidity, and for partial summary judgment on several additional issues. Dkt. 165. Plaintiffs seek

¹ The parties agreed to drop claims 1-3 from this case. Dkt. 209, at 28.

judicial construction of certain claim terms, but they have not sought summary judgment on any issue. Dkt. 171. The court will address the claim construction issues, and it will deny defendants' motion for summary judgment.

BACKGROUND

Federal law requires telephone companies to provide "telephone relay service," or TRS, to people with speech or hearing impairments. TRS systems must provide users with telecommunications that are as close to the functional equivalent of a voice telephone communication as available technology allows. Users do not pay to use TRS systems; the cost is borne by telephone subscribers generally, through a required surcharge on phone bills.

Ultratec and CapTel are privately held companies based in Madison, Wisconsin. They develop and provide TRS technologies and services. Sorenson and CaptionCall are based in Utah. They are among plaintiffs' competitors.

In general, TRS systems involve connecting a hearing-impaired user to a "relay," typically a call center at which a call assistant can transcribe speech into text so that the assisted user can read the words of the other caller. (The court will follow the language of the claims at issue and refer to the user of the TRS system as the "assisted user" and to the other caller as the "remote user.") Early forms of TRS involved a one-line connection from the assisted user to the relay, and from the relay through another connection to the remote user. Such a system is cumbersome and slow because it makes the users wait for the call assistant to translate back and forth between text and speech. Over time, more sophisticated and efficient systems made TRS more functionally equivalent to voice telephone communication.

The form of TRS at issue in this case is the captioned telephone, which allows the assisted user and the remote user to speak back-and-forth as they would on a traditional voice telephone. But the assisted user's device includes a display with text captions of the remote user's words. A captioned telephone allows a hard-of-hearing user to pick up any missed words from the text captions.

Plaintiffs contend that defendants infringe the '398 patent by providing captioned telephone services using their captioned telephone devices, the CaptionCall Model 57T and the CaptionCall Model 57Tx. Defendants deny infringement and they contend that the '398 patent is invalid for multiple reasons.

ANALYSIS

A. Jurisdiction

The court has jurisdiction over this case pursuant to 28 U.S.C. § 1338(a) because it arises under the patent laws of the United States.

B. Summary judgment standard

In patent cases, as in civil cases generally, summary judgment is appropriate if defendants show that "there is no genuine dispute as to any material fact and [they are] entitled to judgment as a matter of law." Fed. R. Civ. P. 56(a). In ruling on defendants' motion for summary judgment, the court views all facts and draws all reasonable inferences in the light most favorable to plaintiffs, as the non-moving parties. *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 255 (1986). In deciding a motion for summary judgment in a patent case, the court bears in mind that defendants have the burden to show invalidity by clear and convincing evidence and plaintiffs have the burden to prove infringement to a preponderance

of the evidence. *High Point Design LLC v. Buyer's Direct, Inc.*, No. 14-1464, 2015 WL 4604995, at *4, *6 (Fed. Cir. July 30, 2015). “Only disputes over facts that might affect the outcome of the suit under the governing law will properly preclude summary judgment.” *Anderson*, 477 U.S. at 248.

C. Claim construction

The court applies two-step processes to evaluate both infringement and invalidity; each begins with claim construction as the first step. *See, e.g., Kemco Sales, Inc. v. Control Papers Co., Inc.*, 208 F.3d 1352, 1359 (Fed. Cir. 2000) (infringement); *Smiths Indus. Med. Sys., Inc. v. Vital Signs, Inc.*, 183 F.3d 1347, 1353 (Fed. Cir. 1999) (invalidity).

A patent's claims define the scope of the invention, and thus the scope of the patentee's right to exclude others from practicing that invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc). The language of a patent claim is given its “ordinary and customary meaning,” which “is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application.” *Id.* at 1313. Sometimes the ordinary and customary meaning of a claim term is not manifestly clear. If that term is material to an issue in the case, then the court must construe that term to establish the meaning that the term would have to one of skill in the art.

The court must start with the claim language itself, which provides substantial guidance to the meaning of the terms. *Id.* at 1314-15. But the claim language must also be read “not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification” and the prosecution history. *Id.* at 1313. The patent and its prosecution history, related patents and their prosecution

histories, and the prior art that is cited or incorporated by reference in the patent-in-suit and its prosecution history constitute the patent's intrinsic evidence. *Id.* at 1314. Of these sources, "the specification is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term." *Id.* at 1315 (internal citations and quotations marks omitted).

The court may also consider extrinsic evidence, which refers to all other types of evidence, including inventor testimony, expert testimony, documentary evidence of how the patentee and alleged infringer have used the claim terms, dictionaries, treatises, and other similar sources. *Id.* at 1317-18. However, extrinsic evidence is less reliable and less useful in claim construction than the patent and its prosecution history. *Id.* Intrinsic evidence trumps any extrinsic evidence that would contradict it. *Id.* at 1314-16.

1. Level of ordinary skill in the art

The parties have proposed different articulations of the level of ordinary skill in the art. Dkt. 170, at 19 (setting out the alternatives). But neither side has explained how any difference in their articulations would be material to any issue in the case. For the purposes of summary judgment, defendants have accepted plaintiffs' articulation:

Post-Secondary Education in at least one of the following areas:
electronic circuitry, electrical engineering, computer science, or
computer information systems;

Exposure to computer hardware, micro-processors, peripheral
devices, software applications, and networking technology;

A general knowledge and high level understanding of
communications technology, including telephone circuits, the
public switched telephone network; and emerging
telecommunications technologies; and

Basic familiarity of the telecommunication needs of the deaf and hard of hearing and related assistive devices for the hearing impaired.

A high level of familiarity with the use of digital signal processing in voice telephony.

Id. The court will also accept it.

2. The asserted claims

The '398 patent describes and claims a method of providing captioned telephone calls using a two-line captioned telephone device. The captioned telephone device connects by one telephone line to the remote user, and by a second telephone line to a relay, where a call assistant can listen to the call and provide captioning of the remote user's speech. But the relay does not hear both sides of the conversation because the method requires the use of a signal processing technique called "echo cancellation" to cancel the voice of the assisted user. With the voice of the assisted user cancelled from the conversation as heard at the relay, the call assistant hears only the voice of the remote user, which makes captioning the remote user's speech faster and more accurate.

Plaintiffs assert independent claim 11, and claims 12 and 13, which depend from it.

Claim 11 provides as follows, with the terms whose meaning is contested emphasized:

A method of operating a captioned telephone call in which an assisted user is connected by a captioned telephone device which is connected both to one telephone line to a remote user and a second telephone line to a relay providing captioning for a conversation, the method comprising the steps of

during a telephone conversation, the captioned telephone device receiving captioning for spoken words of the remote user from the relay and displaying the words in a visual display for the assisted user; and

during the telephone conversation, the captioned telephone device *using echo cancellation to cancel the voice of the assisted user* from the second telephone line so that the relay does not hear the voice of the assisted user, *so the relay can caption all the words on the second telephone line without causing confusion to the assisted user.*

'398 patent, 11:12-12:9. Claim 12 adds an additional limitation relating to the type of telephone line used. '398 patent, 12:10-14. Claim 13 adds the limitation that the telephone of the assisted user and the captioned telephone device are built into a single device. '398 patent, 12:15-17. Neither claim 12 nor claim 13 give rise to material claim construction issues in this case.

The term “echo cancellation” is not itself disputed, although the concept warrants explanation. For technical reasons that are not material to this opinion, the transmission of voices by telephone line commonly gives rise to “echoes,” causing the speaker to hear her own voice echoing back in the telephone receiver. Echoes are distracting and undesirable if they are loud enough and if they are delayed from the original voice by more than a few milliseconds. Echo problems are worse in telephone systems that use digital processing, because the processing significantly increases the delay of the echoes. Telephone systems have long used various well-known echo cancellation technologies to solve the problem.

The basic principle of echo cancellation is that if the original voice signal is fed into an echo cancelling processor, then the processor can “subtract” the echo of the original voice from the echo-contaminated signal to produce a cleaned-up, echo-free signal. In the '398 patent, echo cancellation is put to a different purpose. Beyond cleaning up the echo-contaminated signal, the '398 patent claims using an echo-cancellation processor to remove the voice of the assisted user from the signal sent to the call assistant at the relay.

The parties in this case have agreed to the construction of two claim terms. The first term is “assisted unit,” found in claim 13 of the patent. ’398 patent, 12:16. The parties agree that the word “unit” is a typographical error, which the court may correct. *Ultimax Cement Mfg. Corp. v. CTS Cement Mfg. Corp.*, 587 F.3d 1339, 1353 (Fed. Cir. 2009). The parties agree that the intended word was “user,” and so the court will construe the term to mean “assisted user.”

The second agreed construction is that the term “telephone line” means “a communication line capable of carrying voice and/or data.” Dkt. 176, at 11. The court will adopt the agreed-upon construction.

3. Disputed claim terms

The parties present two claim construction issues, both arising from claim 11.

a. “Using echo cancellation to cancel the voice of the assisted user”

The first issue relates to the term “using echo cancellation to cancel the voice of the assisted user.” The issue is what it means for the voice of the assisted user to be “cancelled.” The parties and their experts agree that echo cancellation processing will not completely remove all traces of the assisted user’s voice: there will always be some level of bleed through, so that the call assistant can hear a remnant of the assisted user’s voice, typically as a faint buzzing. *See* Dkt. 119, at 39-40; Dkt. 126, ¶ 66; Dkt. 214, at 33; and Dkt. 228, at 2 n.1.

Plaintiffs propose that “cancel the voice of the assisted user” means that the voice is attenuated “to a level at which the bleed through is insignificant, non-disruptive, and non-distracting to the” relay. Dkt. 176, at 14 and Dkt. 214, at 37. Defendants contend that the term means that the assisted user’s voice is inaudible, which defendants contend would be the plain meaning of the term. Dkt. 181-1, at 37 and Dkt. 206, at 6. As a starting point, the

court agrees with defendants: the claim language is clear that the voice of the assisted user is inaudible to the call assistant at the relay.

The court turns first to the claim language and specification because “[i]n claim construction, this court gives primacy to the language of the claims, followed by the specification.” *Tempo Lighting, Inc. v. Tivoli, LLC*, 742 F.3d 973, 977 (Fed. Cir. 2014). Claim 11 states that it uses echo cancellation “so that the relay does not hear the voice of the assisted user.” ’398 patent, 12:5-6. Similarly, the patent’s specification explicitly refers to the relay’s inability to hear the assisted user’s voice three times. First, the patent’s summary of the invention explains that one object of the invention is to create a system wherein “the relay call assistant does not have to hear the voice of the assisted user.” ’398 patent, 2:20-21. Second, the specification explains that the purpose of using echo cancellation is “to remove or cancel the voice of the assisted user from the audio . . . so that the call assistant at the relay only hears the voice of the remote user that is to be captioned.” ’398 patent, 7:51-55. Third, the specification describes the location of echo cancellation on the line in relation to the assisted user, “so that the second telephone line . . . does not transmit to the relay any of the voice of the assisted user Thus the call assistant at the relay . . . is not exposed to the voice of the assisted user.” ’398 patent, 8:1-5. These statements all say the same thing: the invention uses echo cancellation so that the call assistant at the relay does not hear the assisted user’s voice.

But the experts agree that echo cancellation cannot entirely remove all traces of the assisted user’s voice. Thus, one of skill in the art would recognize that claim 11 would not require that all traces of the assisted user’s voice be eliminated. Plaintiffs’ expert, Paul Ludwick, contends that the claim should be construed to require only that the voice of the

assisted user be attenuated to the level at which it is “insignificant, non-disruptive, and non-distracting.” Dkt. 119, at 40. But Ludwick points to nothing in the claims or the specification that supports this interpretation. The patent does not say that the voice of the assisted user is reduced or attenuated to a non-disruptive level; it says that it is cancelled so that it is not heard. The opinion of defendants’ expert, Kishan Sheno, proposes an interpretation that is consistent with the language of the patent, Dkt. 126, ¶ 65, but his interpretation does not address the fact that echo cancellation will not eliminate every trace of the voice of the assisted user.

Ultimately, neither side has persuaded the court that the term requires judicial construction. The claim requires that the call assistant at the relay will not hear the voice of the assisted user. But nothing in the claim or in the specification requires that every trace of the signal containing the voice must be completely eliminated. This claim limitation would be satisfied so long as the voice of the assisted user is inaudible, even if the call assistant at the relay could still hear some remnant of the signal. The claim language itself is sufficiently clear to convey this concept. The court is “not (and should not be) required to construe every limitation present in a patent’s asserted claims.” *O2 Micro Int’l Ltd. v. Beyond Innovation Tech. Co. Ltd.*, 521 F.3d 1351, 1362 (Fed. Cir. 2008). It construes a claim only where doing so would clarify the meaning and scope of the term. *U.S. Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1568 (Fed. Cir. 1997) (“Claim construction is a matter of resolution of disputed meanings and technical scope, to clarify and when necessary to explain what the patentee covered by the claims, for use in the determination of infringement. It is not an obligatory exercise in redundancy.”). Accordingly, the court will decline to construe the term “using echo cancellation to cancel the voice of the assisted user.”

b. “So the relay can caption all the words on the second telephone line without causing confusion to the assisted user”

Claim 11 provides that the relay does not hear the voice of the assisted user “so the relay can caption all the words on the second telephone line without causing confusion to the assisted user.” ’398 patent, 12:6-8. This phrase gives rise to two issues.

The first issue is whether the phrase is a claim limitation or merely a non-limiting statement of an intended result. In *Minton v. National Association of Securities Dealers, Inc.*, 336 F.3d 1373, 1381 (Fed. Cir. 2003), the court explained that “[a] whereby clause in a method claim is not given weight when it simply expresses the intended result of a process step positively recited.” The “without causing confusion” phrase is like the “whereby the security is traded efficiently” phrase in *Minton*, and like similar phrases in *Texas Instruments Inc. v. U.S. International Trade Commission*, 988 F.2d 1165, 1171-72 (Fed. Cir. 1993). The phrase begins with the words “so the relay,” a transitional phrase that indicates that “without causing confusion” is the result of the process step that uses echo cancellation to cancel the voice of the assisted user. The sub-paragraph explains the step (using echo cancellation) and the purpose of the step in the overall method (so the relay does not hear the voice of the assisted user). The “without causing confusion” language could be eliminated without changing the step because the claim expressly recites the positive components of the process step. Thus, the lack of confusion to the assisted user is merely the intended result of the step, and the court concludes that it is not a claim limitation.

The second issue is whether the “confusion to the assisted user” phrase is limited to confusion that would be caused by captioning the assisted user’s own words, or whether it would include any confusion of the assisted user, regardless of cause. Defendants’ proposed

construction is one that would bolster their non-infringement case. They contend that the phrase is limiting, and that it should be construed to require that the claimed method eliminates *all* confusion for the assisted user, from any source (e.g., confusion caused by captions that are inaccurate or by captions that lag behind the conversation). The court is not persuaded on either point.

Even if the “without causing confusion” phrase were a claim limitation, defendants’ proposed interpretation is not a reasonable one supported by the specification. Defendants argue that the specification does not discuss captioning the assisted user’s own voice or how any confusion would result from doing so. Dkt. 206, at 10. But defendants’ reading of the specification is exceedingly narrow. The specification explains that one purpose of cancelling the voice of the assisted user is “so that the call assistant at the relay only hears the voice of the remote user that is to be captioned and is not confused by the voice of the assisted user.” ’398 patent, 7:51-56. The specification further explains that withholding the voice of the assisted user from the call assistant makes the job of the call assistant easier, “since the call assistant captions the voice he or she hears.” ’398 patent, 8:6-7. The specification and the context of the claim language make it abundantly clear that the confusion referred to in claim 11 would be that caused by the call assistant captioning the voice of the assisted user. The description of the benefits of echo cancellation alludes to no other kind of confusion.

In sum, the phrase “so the relay can caption all the words on the second telephone line without causing confusion to the assisted user” is a non-limiting statement of intended result. The court will give this phrase no weight in the infringement analysis.

4. Indefiniteness

Defendants contend that Claim 11 is indefinite because it relies on terms of degree that defy objective measurement.² Whether a claim complies with the definiteness requirement of 35 U.S.C. § 112 is a question for the court as a matter of claim construction. *Noah Sys., Inc. v. Intuit Inc.*, 675 F.3d 1302, 1311 (Fed. Cir. 2012). In light of the court's claim constructions, the definiteness issues are not complicated.

The claims of a patent must be sufficiently definite. As this requirement is phrased in the Patent Act,³ “[t]he specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.” 35 U.S.C. § 112. “[A] patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2124 (2014). But absolute precision is neither attainable nor desirable because such a requirement would not provide an adequate incentive to innovation and patenting. *Id.* at 2128-29. Thus, the definiteness requirement is a balance

² Defendants also contend that term “the telephone line” in claim 12 is indefinite for lack of an antecedent basis because claim 11 refers to two phone lines. Defendants did not timely raise this issue in their claim construction contentions, and thus the issue is waived. But even if it had been timely raised, the court would reject defendants’ argument. Claim 12 narrows claim 11 by limiting the telephonic connection to a specified set (twisted pair, cell, POS, or internet). The reference to “the” telephone line in claim 12, rather than to “one of the” telephone lines, demonstrates the patentee’s intent to limit claim 12 to embodiments in which both the first and second connections are drawn from the specified set.

³ Section 112 has been reworded so that the pertinent provision now reads: “The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.” The revision is not substantive.

between the interests of the patentee, who is entitled to a modicum of flexibility, and the interests of the public, which is entitled to reasonable notice of what the patent claims. *Id.*

a. “Using echo cancellation to cancel the voice of the assisted user”

Defendants contend that the phrase “using echo cancellation to cancel the voice of the assisted user” is a term of degree that is not amenable to any objective measurement and is thus indefinite. Dkt. 181-1, at 34-35.

Terms of degree, such as “substantially” or “relatively,” are not inherently indefinite, but to be considered definite, a term of degree “must provide objective boundaries” understandable to one of skill in the art. *Interval Licensing LLC*, 766 F.3d at 1370-71. A term of degree is indefinite if it is inherently subjective in that it “depends on the unpredictable vagaries of any one person’s opinion.” *Id.* at 1371 (internal citations and quotation marks omitted); *see also Datamize LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 1350-51 (Fed. Cir. 2005) (comparing terms of degree with subjective measurements), *abrogated on other grounds by Nautilus*, 134 S. Ct. 2120.

Plaintiffs’ proposed construction of the phrase “cancel the voice of the assisted user” would have raised indefiniteness problems, had the court adopted it. Recall that plaintiffs proposed construing the phrase to mean that the voice of the assisted user was attenuated to a non-distracting level. Such an interpretation would be similar to the term “unobtrusive manner,” which the court held to be indefinite in *Interval Licensing*. In that case, the court held that “unobtrusive manner” was indefinite because the facially subjective term was not given an objective boundary anywhere in the specification or the prosecution history. *Interval Licensing*, 766 F.3d at 1373.

But the plain language of the claim at issue here does not rely on a purely subjective term of degree. The claim requires “using echo cancellation to cancel the voice of the assisted user from the second telephone line *so that the relay does not hear the voice of the assisted user.*” ’398 patent, 12:4-6. This language does not rely on a purely subjective concept such as “non-distracting” or “unobtrusive.” To be sure, some element of variability remains because hearing abilities vary from one call assistant to another. But one of skill in the art would understand that the range of normal human hearing and attention would provide a reasonable objective boundary to the claim. We are worlds apart from the boundless subjectivity of the “unobtrusive manner” phrase. To require more than the patent claim language provides here would be to demand absolute objective precision, which the law does not require.

b. “Without causing confusion to the assisted user”

Defendants contend that the phrase “without causing confusion to the assisted user” is also a purely subjective measurement, because what confuses one call assistant might not confuse another. Defendants’ argument is based on two notions that the court has already rejected.⁴

⁴ Defendants also contend that this claim language is not supported by an adequate written description. The standard for satisfying this requirement is whether the disclosure “allows one skilled in the art to visualize or recognize the identity of the subject matter purportedly described.” *Alcon Research Ltd. v. Barr Labs., Inc.*, 745 F.3d 1180, 1190 (Fed. Cir. 2014) (internal citations and quotation marks omitted). The point of the written description requirement is to prevent the patentee from claiming more than he or she invented. *Id.* The court concludes that the language “without causing confusion to the assisted user” is adequately supported by a written description for substantially the same reasons that the court concludes that it is not indefinite. The concept of confusion is described in a way that would make sense to one of skill in the art, demonstrating that the inventors were in possession of that concept at the time of the invention. *See* ’398 patent, 7:51-56.

First, the court has already determined that this language is a non-limiting statement of intended purpose. Because it is not a claim limitation, it does not affect the scope of the claim or provide a basis for an indefiniteness challenge. Second, even if the term were a limitation, the court has already determined that the cited confusion refers only to confusion resulting from captioning the assisted user's own voice. So construed, this claim term would not be indefinite.

D. Infringement

Defendants have moved for summary judgment that their captioned telephone service does not infringe claims 11, 12, or 13 of the '398 patent.⁵ To infringe, defendants' service must meet every limitation of the asserted claims. *Southwall Techs., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1575 (Fed. Cir. 1995). "The essential inquiry is whether the accused product or process contains elements identical or equivalent to each claimed element of the patented invention." *Pozen Inc. v. Par Pharm., Inc.*, 696 F.3d 1151, 1167 (Fed. Cir. 2012) (internal citations and quotation marks omitted).

Defendants contend that they do not meet five limitations of claim 11. But because genuine disputes of fact remain as to all of these limitations, defendants' motion for summary judgment of non-infringement must be denied.

1. Cancel the voice of the assisted user

Defendants maintain that their captioned telephones do not cancel the actual *voice* of the assisted user, but rather they cancel only the *echo* of the voice of the assisted user.

⁵ The parties have agreed to drop any claims of indirect infringement. Dkt. 209, at 29. Accordingly, this analysis addresses only direct infringement.

Defendants' argument is based on the signal flow of the CaptionCall phone, which is illustrated in the report of defendants' expert. Dkt. 126, ¶ 109. (Although two models of the CaptionCall phone are accused in this case, the operation of the two models is the same in all respects material to the infringement analysis.) In the CaptionCall phone, the signal carrying the voice of the assisted user is sent to the first telephone line, which is a standard telephone line connected to the remote user.⁶ The remote user's voice is sent back on the first telephone line. But as a result of sending the assisted user's voice signal over the standard telephone line, the signal coming back from the remote user is contaminated with the echo of the voice of the assisted user. The resulting echo is a well-known phenomenon referred to as a "hybrid echo." The CaptionCall phone is a digital phone, and the digital processing introduces additional delay, which increases the deleterious effect of the echo.

The CaptionCall phone sends the voice signal of the remote user to the relay over an internet connection, which (in light of the stipulated claim construction) constitutes the second telephone line of claim 11. But before the CaptionCall phone sends the remote user's voice to the relay, it uses an echo cancellation processor to cancel the echo of the assisted user's voice from the contaminated signal, so that the relay receives a clean signal from which the echo of the assisted user's voice has been removed.

Defendants contrast the CaptionCall phone with the system illustrated in Figure 2 of the '398 patent. Defendants interpret Figure 2 to show echo cancellation working on the original voice signal of the assisted user. Defendants contend that, by contrast to the embodiment shown in Figure 2, the echo cancellation used in the CaptionCall phones is simply standard echo cancellation, which has long been part of the prior art. Thus, so the

⁶ The remote user is referred to as the "hearing user" or "HU" in the diagram.

argument goes, the CaptionCall phones do not infringe because they do not actually cancel the voice of the assisted user; they cancel only the echo of the voice of the assisted user.

The problem with defendants' argument is that the language of claim 11 does not distinguish between the signal carrying the original voice of the assisted user and the signal carrying the echo of the assisted user's voice. The claim language requires only that the accused method use echo cancellation to cancel the voice of the assisted user. Defendants concede that in the CaptionCall phone, echo cancellation removes the sound of the voice of the assisted user from the signal sent to the relay, which is all that this element of the claim requires. The particular configuration of Figure 2 represents an embodiment; its features cannot be imported into the claims as a limitation. *Phillips*, 415 F.3d at 1310.

2. Cancel the voice of the assisted user . . . so that the relay does not hear the voice

Defendants contend that plaintiffs have failed to adduce evidence that the CaptionCall system attenuates the voice of the assisted user to an inaudible level. Viewing the evidence in the light favorable to plaintiffs as the non-moving parties, this is a disputed fact. Plaintiffs have adduced the expert evidence of Paul Ludwick, who attests, based on his own observations of the CaptionCall system in operation, that in most cases, the voice of the assisted user was inaudible to the call assistant at the relay. Dkt. 119, at 23.

Defendants argue that Ludwick has hearing loss, and that he admitted that he could sometimes make out the voice of the assisted user. These will be fine points to make at trial, but they do not establish the absence of a genuine dispute of fact for purposes of summary judgment. In a deposition in one of the earlier cases, Ludwick admitted to some unspecified hearing loss. Deposition of Paul Ludwick at 59:20, *Ultratec v. Sorenson*, No. 13-cv-346 (W.D.

Wis. Sept. 3, 2014), ECF No. 359. But defendants have not shown that Ludwick's hearing loss is significant enough to affect the admissibility of his testimony. And the fact that the call assistants might sometimes hear the voice of the assisted user is likely a question most relevant to damages.

Whether the CaptionCall phone cancels the voice of the assisted user to the point of inaudibility is a disputed fact. Defendants' motion for summary judgment on this point must be denied.

3. Cancel the voice of the assisted user from the second telephone line

Defendants contend that the CaptionCall phone does not cancel the voice of the assisted user *from* the second telephone line. Defendants argue that, like prior art echo cancellation techniques, the CaptionCall phone cancels the voice of the assisted user from the first telephone line. Defendants appeal to a baseball analogy, arguing that if a runner were removed from first base, it would not make sense to say that the runner had been removed from second base because the runner never reached second base. Dkt. 233, at 22.

Defendants' analogy is inapt for several reasons. First, the CaptionCall phone does not actually remove the echo of the assisted user "from" the first telephone line, at least not in the sense that a baserunner is removed "from" first base. In the CaptionCall method, the voice of the assisted user is carried to the remote user on the first telephone line, and the echo of that voice is carried back to the CaptionCall phone. There is no point at which the first telephone line is free of the voice of the assisted user, and thus the voice of the assisted user is not removed from the first telephone line. Second, based on the diagram of the signal flow in the CaptionCall phone, echo cancellation removes the echo of the assisted user's voice from the signal before it is sent to the relay along the second line. Thus, in the most pertinent

sense of the term “from,” the voice of the assisted user is indeed removed from the second telephone line.

Defendants also argue that it is not actually the echo cancellation processor that removes the voice of the assisted user from the second telephone line in the CaptionCall phone. Rather, according to defendants, some other processor serves this function, such as a non-linear processor shown on the diagram of the CaptionCall phone. There may be other processing devices or steps that affect the signal sent to the relay. But claim 11 is written in open form using the term “comprising,” and thus the claim does not exclude methods that include additional steps or components. *MagSil Corp. v. Hitachi Glob. Storage Tech., Inc.*, 687 F.3d 1377, 1383 (Fed. Cir. 2012).

There is evidence that the CaptionCall phone’s echo cancellation cancels the voice of the assisted user from the second telephone line, and thus defendants’ motion for summary judgment on this point will be denied. However, the existence of other processors, particularly the non-linear processor that follows the echo cancellation, raises a dispute of fact concerning whether echo cancellation cancels the voice of the assisted user to the point where it cannot be heard by the call assistant at the relay. This will be an issue for trial.

4. So the relay can caption all the words

Defendants’ argument on the claim element “so the relay can caption all the words” is based on an estoppel theory. According to defendants, plaintiffs contended, in a prior case in this court and to the FCC, that the CaptionCall system fails to meet the requirement of verbatim captioning because defendants instruct their call assistants to skip words under certain circumstances. Defendants contend that plaintiffs should not be allowed to claim that the CaptionCall system fails to provide verbatim captioning, and now, when it suits them,

accuse the CaptionCall system of captioning all the words. Defendants' argument on this point fails for several reasons.

First, the court has concluded that the language at issue is part of a non-limiting statement of intended purpose that carries no weight in the infringement analysis. Second, as plaintiffs point out, this claim language does not require that the call assistant actually caption all the words. It does not say, for example, "wherein the call assistant captions all the words on the second telephone line." This last part of claim 11 is a description of the purpose of the echo cancellation element, which is to allow the call assistant to caption all the words that he or she hears, without having to parse the voice of the assisted user (which should not be captioned) from the voice of the remote user (which should be captioned). The infringement case turns on the performance of the method, which does not include the actual performance of the individual call assistant. Third, the court would decline to apply the doctrine of judicial estoppel here because defendants have not identified any statement by plaintiffs that is directly inconsistent with the assertion that the CaptionCall system removes the voice of the assisted user so that the call assistant hears only the voice of the remote user. Thus, the call assistant "can"—in the sense that the call assistant "is free to"—caption all the words that he or she hears. Nothing in this contention is inconsistent with plaintiffs' assertion that defendants' captioned telephone service is deficient because the call assistants do not actually caption all the words that they hear. Defendants' motion for summary judgment on this point must be denied.

5. Without causing confusion to the assisted user

Defendants contend that plaintiffs have adduced no evidence concerning whether any actual assisted user is confused. Defendants' argument on this point is, essentially, an issue of

claim construction, which the court has already rejected. This language is part of the larger phrase, “so the relay can caption all the words on the second telephone line without causing confusion to the assisted user.” The court has concluded that this language is a non-limiting statement of intended purpose that carries no weight in the infringement analysis.

Moreover, the court has also concluded that the confusion referred to is the confusion that would arise from captioning the assisted user’s own words back to her. Thus, if the accused CaptionCall system eliminates the voice of the assisted user from the relay, there is no possibility that the assisted user will have her own words captioned, and this type of confusion will be eliminated. Plaintiffs need not adduce direct evidence concerning actual assisted users. The testimony of their expert that the voice of the assisted user is inaudible at the relay is enough to show, by a simple inference, that this type of confusion is eliminated. Defendants’ motion for summary judgment on this point must be denied.

E. Willfulness

Defendants also move for summary judgment that any infringement that they may have committed was not willful because they raised objectively reasonable defenses to the charge of infringement. An objectively reasonable defense would defeat the claim of willfulness, which requires: (1) the lack of objectively reasonable defenses, and (2) subjective willfulness. *Bard Peripheral Vascular, Inc. v. W.L. Gore & Assocs., Inc.*, 682 F.3d 1003, 1006 (Fed. Cir. 2012). Defendants could make a good case that they have presented objectively reasonable defenses. But the court will allow the question of subjective willfulness to go to the jury, and defer ruling on the objective prong until after trial. Defendants’ motion for partial summary judgment will therefore be denied.

F. Invalidity

Defendants seek summary judgement that the asserted claims of the '398 patent are invalid as anticipated or as obvious. The '398 patent is presumed valid, and defendants can overcome this presumption only by establishing invalidity through clear and convincing evidence. 35 U.S.C. § 282; *Novo Nordisk A/S v. Caraco Pharm. Lab. Ltd.*, 719 F.3d 1346, 1352 (Fed. Cir. 2013).

I. Anticipation

Defendants contend that the '398 patent is anticipated by one of plaintiffs' own patents: U.S. Patent No. 6,504,910, for "Voice and Text Transmission System," to Robert Engelke and others, which the court will refer to as Engelke '910. A patent claim is anticipated if a single prior art reference discloses every limitation of the claim. *King Pharm., Inc. v. Eon Labs, Inc.*, 616 F.3d 1267, 1274 (Fed. Cir. 2010).

Engelke '910 discloses a captioned call service using a relay that "re-voices" the remote user's side of the conversation into a speech-recognition program, which then produces text captions of the remote user's words. The system sends the captions to the assisted user in the form of data packets that contain both voice and text. Engelke '910 discloses a one-line system, in which the assisted user's device is connected only to the relay, which provides both the text captions and the voice of the remote user. However, Engelke '910 also contemplates a two-line configuration, in which the assisted user is connected to the relay by a second phone line. Engelke '910, 7:22-46.

But Engelke '910 lacks elements of the asserted claims. Engelke '910 includes echo cancellation to eliminate echoes, but it does not disclose using echo cancellation to cancel the assisted user's voice so that the relay hears only the remote user's voice. Figure 1 of Engelke

'910 shows that the relay receives signals of both the remote user's voice and the assisted user's voice. In Figure 1, the relay (CA) receives audio signal from "Doc" (the remote user), "CPE" (customer premises equipment, i.e., the assisted user's phone), or "Dtr" (digital tone receiver). Defendants' expert interprets Figure 1 to show that the voice of the assisted user is cancelled so that the call assistant hears only the voice of the remote user. But this interpretation of Figure 1 is sharply disputed. Dkt. 238, ¶¶ 515-18. There is no express statement in Engelke '910 that echo cancellation is used to cancel the voice of the assisted user, or that the call assistant at the relay hears only the voice of the assisted user.

Defendants argue that Engelke '910 inherently discloses using echo cancellation to remove the voice of the assisted user from the second telephone line. Defendants rely primarily on testimony from the inventors of the '398 patent that it was a logical choice to place the echo cancellation processor on the captioning device so that it would cancel the assisted user's voice from the second phone line. "Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing *may* result from a given set of circumstances is not sufficient." *Therasense, Inc. v. Becton, Dickinson & Co.*, 593 F.3d 1325, 1332 (Fed. Cir. 2010) (original emphasis) (internal citations and quotation marks omitted). Thus, inherent disclosure is not established by showing that a claim element would be a "logical" choice. Inherency requires necessity. The court concludes that defendants are not entitled to summary judgment that Engelke '910 anticipates claims 11-13 of the '398 patent.

2. Obviousness

Defendants seek summary judgment that the '398 patent is obvious. Defendants bear the burden to demonstrate "by clear and convincing evidence that a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the

claimed invention, and that the skilled artisan would have had a reasonable expectation of success from doing so.” *Bristol-Myers Squibb Co. v. Teva Pharm. USA, Inc.*, 752 F.3d 967, 973 (Fed. Cir. 2014), *cert. denied*, 135 S. Ct. 2050 (2015) (internal citations and quotation marks omitted). Obviousness “is a legal conclusion based on underlying facts,” including “the scope and content of the prior art, the differences between the prior art and the claimed invention, the level of ordinary skill in the art, and any relevant secondary considerations.” *Allergan, Inc. v. Sandoz Inc.*, 726 F.3d 1286, 1290-91 (Fed. Cir. 2013), *cert. denied*, 134 S. Ct. 1764 (2014).

Defendants’ obviousness argument is based on four pieces of alleged prior art:

1. the Engelke ’910 patent, discussed above;
2. plaintiffs’ U.S. Patent Application 2002/0085685, for “System for Text Assisted Telephony” by Engelke and Colwell (Engelke ’685 application);
3. U.S. Patent No. 6,141,415, “Method and Apparatus for detecting Speech at a Near-End of a Communications System, a Speaker-Phone System, or the Like” to Tandhoni S. Rao (the Rao patent); and
4. Trials of plaintiffs’ captioned telephone system in 2001-2003 (the CapTel trials).

CaptionCall presented its obviousness case based on the first three of these references (plus one other) to the Patent Trial and Appeal Board (PTAB), which declined to initiate an *inter partes* review because CaptionCall had not shown a reasonable likelihood that claims 11, 12, and 13 of the ’398 patent were unpatentable. Dkt. 207-47.

This court is not bound by the PTAB decision, but its reasoning is persuasive. The gist of the PTAB decision is that none of the prior art references disclose using echo cancellation to cancel the voice of the assisted user from the second telephone line so that the relay does not hear the voice of the assisted user. Thus, CaptionCall engaged in impermissible hindsight

reconstruction to suggest that the teachings of the prior art could be combined to derive the invention of the '398 patent.

Defendants make the same argument to this court that CaptionCall made to PTAB. In this court, they have the benefit of their expert, Kishan Shenoi, who offers opinions about the teachings of the prior art and the motivation to combine the teachings of multiple references. But the same problem exists with regard to the first three prior art references: Shenoi does not show that these references disclose using echo cancellation to cancel the voice of the assisted user so that the relay does not hear the voice of the assisted user. Shenoi contends that this use of echo cancellation would be obvious to one of skill in the art. But plaintiffs adduce the testimony of their own expert, Paul Ludwick, to put this point in dispute. And plaintiffs adduce evidence of secondary considerations that also raise disputed facts concerning obviousness. The bottom line is that the facts relating to whether the '398 patent is obvious are sharply disputed, at least as it pertains to the first three pieces of prior art.

a. The CapTel trials

The CapTel trials raise a different set of issues. The CapTel trials involved a one-line captioned telephone system, similar to the system disclosed in Engelke '910. But the CapTel trials used echo cancellation to cancel the voice of the assisted user so that the relay did not hear the voice of the assisted user. If the CapTel trials are prior art, then defendants' obviousness case would be considerably stronger than the case that CaptionCall presented to PTAB.

Defendants assert that the CapTel trials are prior art under 35 U.S.C. § 102(b) because they constitute technology that was in public use or on sale for more than a year

before February 18, 2004, the filing date of the provisional application the led to the '398 patent. Although defendants invoke § 102(b), they do not contend that the CapTel trials give rise to a typical on-sale bar because the CapTel trials did not involve the same invention claimed in the '398 patent. However, as both sides acknowledge, if the CapTel trials constitute technology in public use or on sale, then the CapTel trials are part of the prior art available to establish the obviousness of the '398 patent. *Dippin' Dots, Inc. v. Mosey*, 476 F.3d 1337, 1344 (Fed. Cir. 2007) ("Prior art under the § 102(b) on-sale bar is also prior art for the purposes of obviousness under § 103."). The timing is not disputed: the CapTel trials took place between 2001 and 2003, before the critical date.

The question is whether the CapTel trials constitute public use or a commercial sale, or, as plaintiffs maintain, whether they were merely an experimental use, which would not qualify as a public use or a commercial sale. Defendants must show public use or commercial sale by clear and convincing evidence. *EZ Dock v. Schafer Sys., Inc.*, 276 F.3d 1347, 1351 (Fed. Cir. 2002). Public use is "any use of the claimed invention by a person other than the inventor who is under no limitation, restriction, or obligation of secrecy to the inventor." *New Railhead Mfg., L.L.C. v. Vermeer Mfg. Co.*, 298 F.3d 1290, 1297 (Fed. Cir. 2002).

The assisted users in the CapTel trials had captioned telephone devices, and they received captioned telephone services by means of the tested CapTel system. The assisted users did not know anything about the technology being used, and thus the CapTel trials did not constitute a public disclosure of the technology. But commercial use of an invention by the public is a public use, even if the invention itself is kept a secret. *Invitrogen Corp. v. Biocrest Mfg., L.P.*, 424 F.3d 1374, 1381 (Fed. Cir. 2005). This rule advances one of the policies underlying § 102(b), which is to encourage the inventor to choose promptly between

maintaining secrecy or entering the patent system. *Id.* at 1383 (an inventor “shall not exploit his discovery competitively after it is ready for patenting; he must content himself with either secrecy or a patent.” (internal citations and quotation marks omitted)). Section 102(b) advances the same policy with regard to public sales. A sale happens where “the inventor commercially exploited the invention before the critical date, even if the inventor did not transfer title to the commercial embodiment of the invention.” *Meds. Co. v. Hospira, Inc.*, 791 F.3d 1368, 1371 (Fed. Cir. 2015).

During the CapTel trials, the relays were under confidentiality agreements. Although the critical technology was at the relay, the details of the technology could not be seen by the call assistants who used it. Dkt. 234, at 197. The internal operation of the technology was also invisible to the assisted users. Thus, there is no genuine dispute that the CapTel trials preserved the secrecy of the technology, and thus they did not publicly disclose the claimed invention. Defendants contend that, notwithstanding the preserved secrecy, the CapTel trials constituted a commercial exploitation of the technology, whereas plaintiffs assert that the CapTel trials were only experimental uses.

Defendants start with an unreasonably broad notion of commercial use, which they contend includes “any activity that serves the patentee’s commercial purpose.” Dkt. 181-2, at 108. But even prototypical experimental uses would, in some sense, advance the patentee’s commercial purposes, and thus the court must reject defendants’ articulation of the standard. The real question is whether the primary purpose of the putative commercial activity was experimentation for the purpose of perfecting the invention. *EZ Dock*, 276 F.3d at 1357 (Linn, J., concurring) (cited with approval by *Allen Eng’g Corp. v. Bartell Indus., Inc.*, 299 F.3d

1336, 1353 (Fed. Cir. 2002)). To answer this question, federal courts have considered multiple factors, including:

(1) the necessity for public testing, (2) the amount of control over the experiment retained by the inventor, (3) the nature of the invention, (4) the length of the test period, (5) whether payment was made, (6) whether there was a secrecy obligation, (7) whether records of the experiment were kept, (8) who conducted the experiment, (9) the degree of commercial exploitation during testing, (10) whether the invention reasonably requires evaluation under actual conditions of use, (11) whether testing was systematically performed, (12) whether the inventor continually monitored the invention during testing, and (13) the nature of contacts made with potential customers.

Clock Spring, L.P. v. Wrapmaster, Inc., 560 F.3d 1317, 1327 (Fed. Cir. 2009).

Plaintiffs have adduced evidence to support their contention that under these considerations, the trials were experimental. Plaintiffs contend that the CapTel trials were intended to determine whether the system would work under actual conditions of use, and that the trials prompted changes to the technology. But defendants have adduced evidence that the CapTel trials exceeded the bounds of permitted experimental use because they were primarily devoted to developing the *market* for the technology, not the technology itself. Dkt. 208, at 322-24. For example, defendants point to CapTel documents showing that the purposes of the CapTel trials were to secure regulatory approval and to induce other states to adopt captioned telephone technology. If the technology was already developed, continued testing for regulatory approval and for developing the market would exceed the bounds of experimental use. *Clock Spring*, 560 F.3d at 1328.

The bottom line is that there are genuine disputes of fact concerning whether the CapTel trials fall within the experimental use doctrine. Accordingly, defendants' motion for

partial summary judgment that the CapTel trials are prior art will be denied. This will be an issue for trial.

b. Secondary considerations

Defendants also seek partial summary judgment that plaintiffs have no admissible evidence supporting secondary considerations of non-obviousness. A court must consider evidence of secondary considerations when such evidence is presented. *Transocean Offshore Deepwater Drilling, Inc. v. Maersk Contractors USA, Inc.*, 617 F.3d 1296, 1305 (Fed. Cir. 2010). But plaintiffs must establish a nexus between the secondary consideration evidence and the claimed invention. *Tokai Corp. v. Easton Enters., Inc.*, 632 F.3d 1358, 1369 (Fed. Cir. 2011). Commercial success, for example, might be due to an element that is in the prior art, or to the market power of the patentee, rather than the merits of the invention. *Id.*

At summary judgment, plaintiffs have adduced ample evidence to show secondary considerations, such as long-felt need, industry praise, licensing, and potential copying. Defendants have raised substantial doubt about whether there is a nexus between this evidence and the invention claimed in the '398 patent. But defendants have not established the lack of nexus beyond genuine dispute. Thus, defendants' motion for partial summary judgment on secondary considerations must be denied.

G. Injunction

Defendants moved for summary judgment that plaintiffs, even if they prevailed, would not be entitled to injunctive relief. The court will defer this issue. Should plaintiffs prevail and seek an injunction, the court will entertain defendants' objections to injunctive relief at that time. In the meantime, summary judgment on the issue will be denied.

CONCLUSION

Defendants have failed to show that they are entitled to summary judgment that claims 11, 12, and 13 of the '398 patent are anticipated or obvious. They have also failed to show, beyond genuine dispute, that their services do not infringe the patent. Questions of material fact remain, and defendants' motion for summary judgment will be denied.

ORDER

IT IS ORDERED that:

1. Plaintiffs Ultratec, Inc. and CapTel, Inc.'s motion for claims construction, Dkt. 171, is GRANTED in part and DENIED in part, as described above.
2. Defendants Sorenson Communications, Inc. and CaptionCall, LLC's motion for summary judgment, Dkt. 165, is DENIED.

Entered September 11, 2015.

BY THE COURT:

/s/

JAMES D. PETERSON
District Judge